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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,598	05/02/2001	Harvey Koselka	PRSROB.003A	7149

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EXAMINER

MILLER, PATRICK L

ART UNIT	PAPER NUMBER
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2837

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/847,598

Applicant(s)

KOSELKA ET AL.

Examiner

Patrick Miller

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5,6,9,12,17,18,23,24 and 28-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5,9,12,18,23 and 24 is/are allowed.
- 6) ☒ Claim(s) 6,17,28-31,33-39,41,42,44-51 and 54-56 is/are rejected.
- 7) ☒ Claim(s) 32,40,43,52 and 53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. The Examiner agrees with the Applicant's argument (page 11, lines 6-12, filed on 01/17/03) that Bierma (WO 91/11134) discloses a non-autonomous mopping apparatus; however, the Prior Art of Kinto (6,142,252) and Ueno et al. (JP 11-178765) teach an autonomous cleaning robot. It would have been obvious to one having ordinary skill in the art at the time of the invention that the mopping apparatus of Bierma could be configured as an autonomous cleaning robot, as taught by Ueno et al. The Prior Art does not disclose the web being offloaded.
2. Applicant's arguments, see page 11, lines 13-20, filed on January 17, 2003, with respect to the rejection(s) of claim(s) 6 under 35 USC 102(b) have been fully considered and are not persuasive. The Examiner agrees with Applicant in that the word "porous" means the material is absorbent. However, Bierma (WO 91/11134) discloses a pad that has a metal or plastic layer under a coating of resilient porous material. This makes the pad resilient (due to both materials) and non-absorbent (due to the metal bottom layer) (page 2, lines 10-18).

Claim Objections

3. Claims 48 and 49 are objected to because of the following informalities: See bullets below.

Appropriate correction required.

- With respect to claim 48, to clarify the claim, please name the “means” something more descriptive. For example, “control means.”
- With respect to claim 49, there is a lack of antecedent basis for the terms “the received signals” and “the surface.” Received signals are initially called control signals.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Bierma (WO 91/11134).
- Bierma discloses a floor mopping assembly, comprising: a first roller that lets out a web on a roll (Fig. 1, #1); a second roller that reels in the web (Fig. 1, #2); a motor system that operates the rollers to transfer the web (Fig. 1, #1); a housing that encloses the motor system, first and second rollers, and the pad (endless belt) (Fig. 1, #15); and a compliant, non-absorbent pad (pressing means, e.g. endless belt) that presses the web against a surface (Fig. 1, #8), where Bierma discloses a pad that has a metal or plastic layer under the coating of resilient porous material. This makes the pad resilient (due to both materials) and non-absorbent (due to the metal bottom layer) (page 2, lines 10-18).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bierma (WO 91/11134) in view of Kinto (6,142,252).

- Bierma discloses a floor mopping assembly, comprising: a first roller that lets out a web on a roll (Fig. 1, #1), a second roller that reels in the web (Fig. 1, #2), a motor system that operates the rollers to transfer the web (Fig. 1, #1), and the components are conveyed on the chassis (Fig. 1, #11).
- Bierma does not disclose a computerized chassis and the roll of webbing encased in a watertight compartment.
- Kinto discloses a travel unit CPU (processor) that is onboard the vehicle (chassis) (Col. 10, lines 29-49). Kinto's motivation for using a travel unit CPU to control a drive motor that drives the vehicle is to centralize overall control of the mobile unit (Fig. 1, #10). This has the advantage improving efficiency since the CPU receives all measured values from each control unit (e.g. motor control unit and chassis rotation control unit) and singly responsible for processing data and controlling vehicle movement.
- Bartsch discloses a cleaning apparatus where the entire apparatus is waterproof (watertight). Bartsch makes the entire cover waterproof (Fig. 1, #10) (entire cover would encase the roll of web, since only one compartment is claimed), which has the

advantage of protecting the internal components of the apparatus from liquids and hazardous chemicals (Col. 28, lines 1-6), thereby preventing internal corrosion.

- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention that the floor mopping assembly of Bierma and Kinto could be modified with a waterproof (watertight) cover that encases the components of the apparatus (including the roll of web), providing the advantage of preventing internal corrosion, as taught by Bartsch. Further, it would have been obvious to one having ordinary skill in the art at the time of the invention that the floor mopping assembly of Bierma could be modified by making the chassis computerized (including a processor to control the motor system) and one drive motor configured controlled by the CPU (without human intervention) to provide mobility, which has the advantage of improving system efficiency, as taught by Kinto.

6. Claims 28-31, 33, 35, 36, 38, 39, 41, 42, 44, 46-51, 54, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bierma (WO 91/11134) in view of Nakanishi et al. (5,959,423).

- With respect to claims 28, 39, and 48, Bierma discloses a floor mopping assembly, comprising: a first roller that lets out a web on a roll (Fig. 1, #1), a second roller that reels in the web (Fig. 1, #2), a motor system that operates the rollers to transfer the web (Fig. 1, #1), a housing that encloses the motor system, first and second rollers, and the pad (endless belt) (Fig. 1, #15), and a pad (pressing means, e.g. endless belt) that presses the web against a surface (Fig. 1, #8). Additionally, with respect to claim 49, Bierma discloses a method of mopping a surface with a mopping device, the method comprising:

connecting a roll of webbing on a feed roller to a take-up roller, pressing the portion of the webbing so the webbing cleans the surface (pg. 4, lines 19-21), and transferring the portion of the webbing to the take-up roller (pg. 4, lines 26-29).

- Bierma does not disclose a master controller (control means) that is separately housed from the floor mopping assembly, in communication with the floor mopping assembly, and that controls the floor mopping assembly (claims 28, 39, 48), the housing being part of a cleaning *robot* (claim 29), the master controller including sensors (claims 30, 41), the master controller directing movement of the floor mopping assembly (claims 31, 42), the master controller is a stationary computer (claims 33, 44), and a processor configured to control the motor system (claim 47). Further, Bierma does not disclose the method transmitting control signals from an autonomous master controller to the floor-mopping device and moving the floor-mopping device based on the received signals (claim 49).
- Nakanishi et al. disclose a mobile robot that cleans floors (Abstract) (claims 28, 29, 39, and 48) and a communication unit and control unit (claim 47) onboard a mobile cleaning apparatus (Fig. 1, #'s 13, 14). The communication and control units are provided on a mobile cleaning unit so a master controller (that works from a program, or autonomously) (Col. 4, lines 6-18) can transmit control signals to the cleaning unit and the cleaning unit moves in response to said control signals. This provides the advantage of allowing the cleaning unit to operate without human supervision.
- Nakanishi et al. further disclose a master controller is a computer that is stationary when the mobile robot is operating (implied); the master controller has sensors (Col. 5, lines

35-47); and the master controller controls movement of the cleaning robot (Col. 5, lines 32-34) (claims 29, 30, 31, 33, 41, 42, 44).

- Nakanishi et al. teaches that it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the cleaning unit of Bierma with communication and control units so the cleaning unit can be controlled by a master controller, thereby providing the advantage of operating without human supervision. Additionally, it would have been obvious to one having ordinary skill in the art at the time of the invention to make the master controller a stationary computer, configure the master controller with sensors, and the master controller controls the movement of the cleaning unit, thereby providing the advantage of ensuring the control unit and sensors are situated during operation in the most advantageous position to transmit and receive signals, allow the master control unit to receive feedback from the cleaning unit via the sensors, and control the cleaning unit by a user input program, as taught by Nakanishi et al.
- With respect to claim 35, Bierma discloses the pad (pressing means) can be made from foam materials like polyether foam (closed-cell foam) (pg. 2, lines 25-28).
- With respect to claim 36, Bierma discloses the web is moistened prior to being pulled by the motor driven roller (page 3, lines 22-23).
- With respect to claim 38, Bierma discloses the web is made of cloth (page 3, line 20-26).
- With respect to claim 46, Bierma discloses the chassis being driven by a motor (page 1, lines 20-21).

- With respect to claim 50, Bierma and Nakanishi et al. do not explicitly state the cleaning process should be repeated until the entire floor surface is mopped; however, one having ordinary skill in the art would recognize that in order to properly clean the entire surface, the disclosed process must be repeated. Repeating the cleaning steps have the advantage of ensuring the unclean portion of floor is cleaned with a clean webbing portion.
 - With respect to claim 51, Bierma discloses the method where transferring includes moving the webbing via a motor system (pg. 1, lines 20-25).
 - With respect to claim 54, Bierma discloses the method of moistening the webbing prior to pressing (pg. 3, lines 32-34).
 - With respect to claim 55, Bierma discloses the method of applying a cleaning agent to the webbing (pg. 3, lines 29-31).
7. Claims 34 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bierma and Nakanishi et al. as applied to claims 28 and 39 above, and further in view of Nishikawa et al. (5,568,030).
- Bierma and Nakanishi et al. teach all of the limitations of claims 28 and 39 above, but with respect to claims 34 and 45, do not disclose one or more additional floor mopping assemblies controlled by the master controller.
 - Nishikawa et al. disclose a master controller that controls multiple mobile robots. The motivation for one of ordinary skill in the art to provide multiple mobile robots that are controlled by a master controller is so the area can be cleaned faster than with only one cleaning robot (Col. ½, lines 35-67/1-11).

- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Bierma and Nakanishi et al. so that multiple cleaning robots are controlled by a master controller, thereby providing the advantage of cleaning the area faster than with only one cleaning robot, as taught by Nishikawa et al.

8. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bierma and Nakanishi et al. as applied to claim 28 above, and further in view of Ueno (JP 11-178765).

- Bierma teaches all of the limitations of claim 28 above, but with respect to claim 37, does not disclose the web being a paper-based material.
- Ueno discloses a cleaning robot with a paper mop (Fig. 1, #45). Ueno uses a paper mop to absorb dust [0017]. The advantage of using a paper mop is because paper is less expensive compared to a cloth mop (web). Additionally, paper can come rolled, thus a person of ordinary skill in the art would recognize a roll of paper could be substituted for a cloth-based roll (web).
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention that the cloth-based web of Bierma could be replaced with a paper web that absorbs dust and has the advantage of being less expensive compared to a cloth web, as taught by Ueno.

9. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bierma and Nakanishi et al. as applied to claim 49 above, and further in view of Silvenis (5,092,699).

- Bierma and Nakanishi et al. teach all of the limitations of claim 49 above, but with respect to claim 56, do not disclose applying a wax to the webbing.

- Silvenis discloses a floor cleaning apparatus where wax is applied directly to a fabric (webbing) (Fig. 3, #22) (Col. 2, lines 46-52). Silvenis's motivation for applying wax to the fabric is apply a coat of wax to the floor. Applying wax to the fabric (webbing) has the advantage of not wasting wax by inaccurate spraying, as sometimes occurs when using a separate or elevated wax application.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the cleaning apparatus of Bierma and Kinto so that wax can be applied to the webbing, which has the advantage of not wasting wax, as taught by Silvenis.

Allowable Subject Matter

10. Claims 5, 9, 12, 18, 23, and 24 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter:

- With respect to claim 5, the Prior Art discloses a floor mopping apparatus where it would be obvious for the apparatus to be an autonomous cleaning robot and where a soiled portion of a web is disposed to a "take-up" roller; however, the Prior Art does not disclose offloading the web after it has been soiled.
- With respect to claim 9, Bartsch et al. (6,459,955) disclose a floor mopping assembly where the entire contents are encased by a watertight compartment; however, Bartsch et al. does not disclose a housing that houses the contents of a mopping apparatus including a watertight case that houses a roll of web.

Art Unit: 2837

- With respect to claims 12 and 18, the Prior Art discloses a floor mopping assembly where the roll of web is disposable, but not where the roll of web is *encased* in a disposable assembly.
- With respect to claim 23, the Prior Art does not disclose the method of mopping the floor without human intervention that transfers a portion of a webbing once it has been determined that the webbing is soiled.
- With respect to claim 24, the Prior Art does not disclose the method of mopping a floor without human intervention, that transfers a portion of a webbing once it has been determined that the mopping device has cleaned a predetermined area of the surface.

12. Claims 32, 40, 43, 52, and 53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- With respect to claims 32 and 43, the Prior Art does not disclose an autonomous *mobile* robot being a master controller that controls cleaning units.
- With respect to claim 40, the Prior Art (Bierma) disclose a cleaning apparatus with rollers that rest on the surface (Fig. 1, #9); however, these rollers are not the rollers that take-up the roll.
- With respect to claim 52, the Prior Art does not disclose transferring the webbing once it has been determined that the webbing is soiled.
- With respect to claim 53, the Prior Art does not disclose transferring the webbing once it has been determined that the mopping device has cleaned a predetermined area of the surface.


Art Unit: 2837

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 703-308-4931. The examiner can normally be reached on M-F, 8:30-5:30.
14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached on 703-308-3370. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.
15. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Patrick Miller
Examiner
Art Unit 2837

pm
March 31, 2003


ROBERT E. NAPPI
SUPERVISORY PATENT EXAMINER
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